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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,412

06/20/2006

Masashi Otsuki

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EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

02/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/583,412	Applicant(s) OTSUKI ET AL.	
	Examiner Tony Chuo	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/31/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-3 and 6-11 are currently pending. Claims 4 and 5 have been cancelled. The amended claim 1 does overcome the previously stated 102 rejection. However, upon further consideration, claims 1-3 and 6-11 are rejected under the following new and previously stated 102 and 103 rejections. This action is made FINAL as necessitated by the amendment.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 8/31/09 was filed after the mailing date of the non-final rejection on 8/4/09. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, 7, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusumoto et al (JP 09-213348).

The Kusumoto reference discloses a non-aqueous electrolyte battery comprising: a positive electrode, a negative electrode, and a non-aqueous electrolyte solution, wherein the non-aqueous electrolyte solution comprises diethyl carbonate (BP: 127°C) and an additive such as 2-picoline (BP: 129°C), 3-picoline (BP: 144°C), 4-picoline (BP: 144°C), piperazine (BP: 146°C), pyrimidine (BP: 124°C), pyrazine (BP: 115°C), and 1,3,5-triazine (BP: 114°C); and a supporting salt (See Abstract and paragraphs [0047],[0048]).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ootsuki et al (JP 2003-249233).

The Ootsuki reference discloses a lithium primary cell (non-aqueous electrolyte cell) comprising: a positive electrode, a negative electrode, and an electrolyte solution comprising: an aprotic organic solvent, LiBF₄ (support salt), and a phosphazene derivative B (formula (IV), n=3, one methoxy and 5 fluoride among six R)(boiling point of 110°C) (See paragraph [0145]). It also discloses aprotic organic solvents such as ethylene carbonate, propylene carbonate, diethyl carbonate (boiling point=127°C), dimethyl carbonate (boiling point=90°C), and ethyl methyl carbonate (boiling

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point=108°C) (See paragraph [0028]). Examiner's note: paragraph [0092] of the present application discloses an additive E that is cyclic phosphazene compound of the formula (II), wherein n is 3, one of six R⁴s is methoxy group and five are fluorine, wherein the boiling point is 110°C.

However, Ootsuki et al does not expressly teach a compound containing phosphorus and nitrogen in its molecule that has a difference of a boiling point from that of the respective aprotic organic solvent of not more than 25°C, wherein the aprotic organic solvent is at least one selected from the group consisting of ethylene carbonate, propylene carbonate, diethyl carbonate (boiling point=127°C), dimethyl carbonate (boiling point=90°C), and ethyl methyl carbonate (boiling point=108°C).

However, it would have been obvious to one of ordinary skill in the art to modify the Ootsuki electrolyte to include an aprotic organic solvent that has a boiling point of not more than 25°C from phosphazene derivative B, wherein the aprotic organic solvent is at least one selected from the group consisting of diethyl carbonate, dimethyl carbonate, and ethyl methyl carbonate because it would have been obvious to try the known aprotic organic solvents for forming a self-extinguishing, fire retardant, incombustible electrolyte solution with a reasonable expectation of success.

7. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki et al (WO/2003/005479) using (US 2004/0191635) as an equivalent English translation.

The Otsuki reference discloses a non-aqueous electrolyte cell comprising: a positive electrode, a negative electrode, and an electrolyte comprising: an aprotic

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organic solvent such as ethylene carbonate, propylene carbonate, γ -butyrolactone, dimethyl carbonate (boiling point=90°C), ethyl methyl carbonate (boiling point=108°C), diethyl carbonate (boiling point=127°C), 1,2-dimethoxy ethane are preferable; a support salt, and a phosphazene derivative represented by general formula (1) and general formula (2) (See Abstract and paragraphs [0116]-[0118],[0212]). It also discloses an Example 7 of the electrolyte comprising a phosphazene derivative (cyclic phosphazene derivative with ethoxy/fluorine ratio of 1/5) (boiling point=115°C) (See paragraph [0224],[0278] and Table 5).

However, Otsuki et al does not expressly teach a compound containing phosphorus and nitrogen in its molecule that has a difference of a boiling point from that of the respective aprotic organic solvent of not more than 25°C, wherein the aprotic organic solvent is at least one selected from the group consisting of ethylene carbonate, propylene carbonate, diethyl carbonate, dimethyl carbonate, ethyl methyl carbonate, and methyl formate.

However, it would have been obvious to one of ordinary skill in the art to modify the Otsuki electrolyte to include an aprotic organic solvent that has a boiling point of not more than 25°C from phosphazene derivative, wherein the aprotic organic solvent is at least one selected from the group consisting of diethyl carbonate, dimethyl carbonate, ethyl methyl carbonate because it would have been obvious to try the known aprotic organic solvents for forming a self-extinguishing, fire retardant, incombustible electrolyte solution with a reasonable expectation of success.

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8. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuki et al (WO/2003/005478) using (US 2004/0192853) as an equivalent English translation.

The Otsuki reference discloses a polymer cell comprising: a positive electrode, a negative electrode, and an electrolyte comprising: an aprotic organic solvent such as ethylene carbonate, propylene carbonate, diethyl carbonate (boiling point=127°C), dimethyl carbonate (boiling point=90°C), ethyl methyl carbonate (boiling point=108°C), and 1,2-dimethoxy ethane; a polymer; a support salt; and a phosphazene derivative represented by general formula (1) and general formula (2) (See Abstract and paragraphs [0031]-[0039],[0061]-[0063],[0090]). It also discloses an Example 2 of the electrolyte comprising a phosphazene derivative (cyclic phosphazene derivative with ethoxy/fluorine ratio of 1/5) (boiling point=115°C) (See paragraph [0224],[0278] and Table 5).

However, Otsuki et al does not expressly teach a compound containing phosphorus and nitrogen in its molecule that has a difference of a boiling point from that of the respective aprotic organic solvent of not more than 25°C, wherein the aprotic organic solvent is at least one selected from the group consisting of ethylene carbonate, propylene carbonate, diethyl carbonate, dimethyl carbonate, ethyl methyl carbonate, and methyl formate.

However, it would have been obvious to one of ordinary skill in the art to modify the Otsuki electrolyte to include an aprotic organic solvent that has a boiling point of not more than 25°C from phosphazene derivative, wherein the aprotic organic solvent is

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at least one selected from the group consisting of diethyl carbonate, dimethyl carbonate, and ethyl methyl carbonate because it would have been obvious to try the known aprotic organic solvents for forming a self-extinguishing, fire retardant, incombustible electrolyte solution with a reasonable expectation of success.

Response to Arguments

9. Applicant's arguments filed 11/4/09 have been fully considered but they are not persuasive.

The applicant argues that WO '479 provides no motivation for using a phosphorus and/or nitrogen containing compound having a boiling point difference from that of the respective aprotic organic solvent of not more than 25°C. The applicant further argues that WO '478 provides no motivation for using a phosphorus and/or nitrogen containing compound having a boiling point difference from that of the respective aprotic organic solvent of not more than 25°C.

In response, the applicant has not provided any evidence showing that it would not be obvious to choose a known aprotic organic solvent from a finite number of identified, predictable solutions, with a reasonable expectation of success. Further, the motivation to use a phosphazene derivative and an aprotic organic solvent that have a difference of not more than 25°C is found in WO '478 which is to form an electrolyte solution with self-extinguishing or fire retardant property. Therefore, the examiner maintains the contention that it would have been obvious to one of ordinary skill in the art to try the known aprotic organic solvents with a reasonable expectation of success.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Michener can be reached on (571) 272-1424. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795